

ABSTRACT

The invention relates to an assembly that consists of a structural element and at least one control element for detecting degradation of said structural element. Said control element comprises an electroconducting control structure that is decoupled from a functionality of the structural element and that has a defined electrical property. The control structure and the structural element are firmly interlinked to such an extent that the degradation of the structural element effects a degradation of the control structure and thus a change of the defined electrical property of the control structure. The structural element is for example a ceramic heat shield of a combustion chamber of a gas turbine. The control structure consists of a brittle ceramic conductor material. A crack in the heat shield extends as a crack in the control structure, thereby changing a functionality of the control structure as a resonator for irradiated, high-frequency electromagnetic waves, an ohmic resistance of the control structure and a frequency-dependent impedance of the control structure. The assembly is used to monitor the operability of the structural element. The assembly is produced by, for example, simultaneous sintering of the structural element and the control structure.